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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/207,168	12/07/98	HINUMA	S 48811

HM22/1020

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EXAMINER	
ROMEO, D	
ART UNIT	**PAPER NUMBER**
1647	9

DATE MAILED: 10/20/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/207,168	Hinuma et al.
Examiner	**Group Art Unit**
David S. Romeo	1647

☒ Responsive to communication(s) filed on *27 Jul 2000*.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-34* is/are pending in the application.

Of the above, claim(s) *9-17, 19, 21-23, and 25-34* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-8, 18, 20, and 24* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☒ Claims *1-34* are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *3*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. Applicant's election without traverse of group I, claims 1-8, 18, 20, 24, and of the species SEQ ID NO: 1 in Paper No. 8 is acknowledged.

2. Claims 9-17, 19, 21-23, 25-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and/or species, there being no allowable generic or linking claim. Claim 20 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) to the extent that it is drawn to a nonelected invention and/or species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

3. Upon further consideration the restriction requirement between SEQ ID NOs: 1-7, 35-43 is recast as a requirement under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Since applicant has elected SEQ ID NO: 1, this species has been constructively elected for prosecution on the merits.

4. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

> An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification (37 CFR 1.78).

5. Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Japan on 06/06/96, 09/19/96, and 10/15/96. It is noted, however, that applicant has not filed certified copies of the applications as required by 35 U.S.C. 119(b).

6. The application is not fully in compliance with the sequence rules, 37 C.F.R. § 1.821-1.825. Specifically, the specification fails to recite the appropriate sequence identifiers at each place where a sequence is discussed. See for example page 13. This is not meant to be an exhaustive list of places where the specification fails to recite the appropriate sequence identifiers at each place where a sequence is discussed. The application cannot issue until it is in compliance. Nucleic acid sequences with 10 or more nucleotides, at least 4 of which are specifically defined,

must comply with the sequence rules. Amino acid sequences with 4 or more residues, at least 4 of which are specifically defined, must comply with the sequence rules.

Correction is required.

Claim Objections

7. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. A polypeptide comprising the amino acid sequence of SEQ ID NO: 38 or 39 (claim 6) does not further limit and does not infringe a polypeptide that does not comprise the amino acid sequence of SEQ ID NO: 31 (claim 1). A polypeptide comprising the amino acid derived from the amino acid sequence of SEQ ID NO: 1 by the deletion, substitution, and insertion of 1 to 5 amino acid residues (claim 6, SEQ ID NOs: 39, 40, 42, 43) does not further limit and does not infringe a polypeptide comprising the amino acid derived from the amino acid sequence of SEQ ID NO: 1 by the deletion, substitution, or insertion of 1 to 5 amino acid residues (claim 1).

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-8, 18, 20, 24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The invention as claimed reads upon a product of nature. It is suggested that the claim 1 be limited to an isolated peptide.

Claim Rejections - 35 USC § 112

10. Claims 1, 2, 4-6, 8, 18, 20, 24 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polypeptide comprising the amino acid sequence of SEQ ID NO: 1, does not reasonably provide enablement for a deleted or substituted variant thereof. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The claims are drawn to or encompass deleted and/or substituted variants of SEQ ID NO: 1 with no functional limitations and encompass polypeptides with no known or disclosed function. The specification fails to provide guidance for, and working examples of, using non-functional deleted and/or substituted variants of SEQ ID NO: 1. The skilled artisan is left to unduly extensive, random, trial and error experimentation in order to determine how to use such non-functional polypeptides. Furthermore, the specification lacks guidance for, and working examples of, making a functional peptide from a non-functional peptide. Moreover, there is a

lack of predictability in the art because predicting structure, hence function, from primary amino acid sequence data is extremely complex and there doesn't exist an efficient algorithm for predicting the structure of a given protein from its amino acid sequence alone. See Bowie (u9) page 1306, column 1, full paragraph 1, and Ngo (v9) page 433, full paragraph 1, and page 492, full paragraph 2. The claims are drawn to or encompass fragments and deleted and/or substituted variants of SEQ ID NO: 1 with a functional limitation or are drawn to or encompass pharmaceutical compositions comprising fragments and deleted and/or substituted variants of SEQ ID NO: 1, which would require that the fragments and deleted and/or substituted variants have a biologic activity. The only working example of a polypeptide having a biologic activity is hCS-17 (SEQ ID NO: 1) which has sleep modulating activity (page 168). Other than SEQ ID NO: 1, the specification has not told the skilled artisan how to make a biologically active peptide comprising a fragment of SEQ ID NO: 1. The specification provides no guidance for which amino acids in the amino acid sequence of SEQ ID NO: 1 are required for biologic activity and structural integrity and which amino acids are expendable and/or substitutable. The skilled artisan is left to unduly extensive, random, trial and error experimentation in order to determine how to use such non-functional polypeptides. Moreover, there is a lack of predictability in the art, as discussed above. In view of the breadth of the claims, the limited amount of direction and working examples provided by the inventor, the unpredictability in the art and the quantity of experimentation needed to make or use the invention based on the content of the disclosure, it

would require undue experimentation for the skilled artisan to make and/or use the full scope of the claimed invention.

11. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a pharmaceutical composition comprising a polypeptide comprising the amino acid sequence of SEQ ID NO: 1, does not reasonably provide enablement for the intended uses of claim 20. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The specification teaches a polypeptide comprising the amino acid sequence of SEQ ID NO: 1 that has sleep modulating action (page 168). The claims are directed to or encompass a composition for the treatment or prevention of the disorders listed in claim 20. The specification provides no guidance for, or working examples of, the prevention or treatment of the disorders listed. The specification fails to establish a nexus between sleep modulating action and the treatment or prevention of the disorders listed. The claims also encompass the treatment or prevention of the disorders listed with precursor peptides. The specification lacks guidance for, and working examples of, delivery of a precursor peptide to a site such that correct processing of the peptide is achieved and the active portion thereof is obtained. The skilled artisan is left to unduly extensive, random, trial and error experimentation in order to determine how to achieve the desired effects. In view of the breadth of the claims, the limited amount of direction and

working examples provided by the inventor, and the quantity of experimentation needed to make or use the invention based on the content of the disclosure, it would require undue experimentation for the skilled artisan to make and/or use the full scope of the claimed invention.

12. Claims 1-8, 18, 20, 24 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification discloses SEQ ID NO:7 which corresponds to the single, full length species of precursor protein. This SEQ ID NO: meets the written description and enablement provision of 35 U.S.C. 112, first paragraph. However, the claims are directed to or encompass all precursor proteins which encompasses sequences from other species, mutated sequences, allelic variants, splice variants, sequences that have a recited degree of identity (similarity, homology), and so forth. None of these sequences meets the written description provision of 35 U.S.C. 112, first paragraph.

Vas-Cath Inc. v. Mahurkar , 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117). The specification does not "clearly allow persons of

ordinary skill in the art to recognize that [he or she] invented what is claimed." (see Vas-Cath at page 1116).

With the exception of SEQ ID NO:7, the skilled artisan cannot envision the detailed chemical structure of the encompassed precursor and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016.

One cannot describe what one has not conceived. See Fiddes v. Baird, 30 USPQ2d 1481, 1483. In Fiddes v. Baird, claims directed to mammalian FGFs were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

Therefore, only SEQ ID NO:7 but not the full breadth of the claim meets the written description provision of 35 U.S.C. 112, first paragraph. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115).

13. The following claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite over the recitation of "(except ... SEQ ID NO: 31 or SEQ ID NO: 32)" because the antecedent basis for this limitation is unclear. It is suggested that the claims recite "wherein said peptide does not comprise the amino acid sequence of SEQ ID NO: 31 or SEQ ID NO: 32".

Claim(s) 1, 2, 7, 8, 18, 20, 24 are indefinite because they recite the term "precursor". Because the instant specification does not identify that material element or combination of elements which is unique to, and, therefore, definitive of "precursor" an artisan cannot determine what additional limitations are placed upon a claim by the presence of this term. It is suggested that the precursor limitation be deleted and that the claim be limited to a salt of said peptide.

Claim 8 is indefinite over the recitation of "cortistatin-like or somatostatin-like activity" because it is unclear what functional activity is unique to, and therefore definitive of, cortistatin activity or somatostatin activity and because the phrase "like" renders the claim(s) indefinite because the claim(s) include(s) activities not actually disclosed (those encompassed by "like"), thereby rendering the metes and bounds of the claim(s) unascertainable. See MPEP § 2173.05(d). It is also unclear which "cortistatin-like or somatostatin-like activity" activity is intended. The metes and bounds of the claim(s) are not clearly set forth.

Claim 20 is indefinite over the recitation of "a neural activity or sleep modulator" because it is unclear which neural activity is intended and it is unclear if the "modulation" is stimulation or inhibition. The metes and bounds of the claim(s) are not clearly set forth.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> a person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Andrews (CA, cited by Applicants). Andrews teaches a peptide SS-37 (Abstract) that comprises the amino acid sequence of SEQ ID NO: 43, wherein said peptide does not comprise the amino acid sequence of SEQ ID NO: 31 or 32.

Conclusion

16. No claims are allowable.

17. A polypeptide comprising the amino acid sequence of SEQ ID NO: 1 is free of the prior art of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Romeo whose telephone number is (703) 305-4050. The examiner can normally be reached on Monday through Friday from 6:45 a.m. to 3:15 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz, can be reached on (703) 308-4623.

Official papers filed by fax should be directed to (703) 308-4242.

Faxed draft or informal communications should be directed to the examiner at (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

David Romeo
Primary Examiner
September 15, 2000